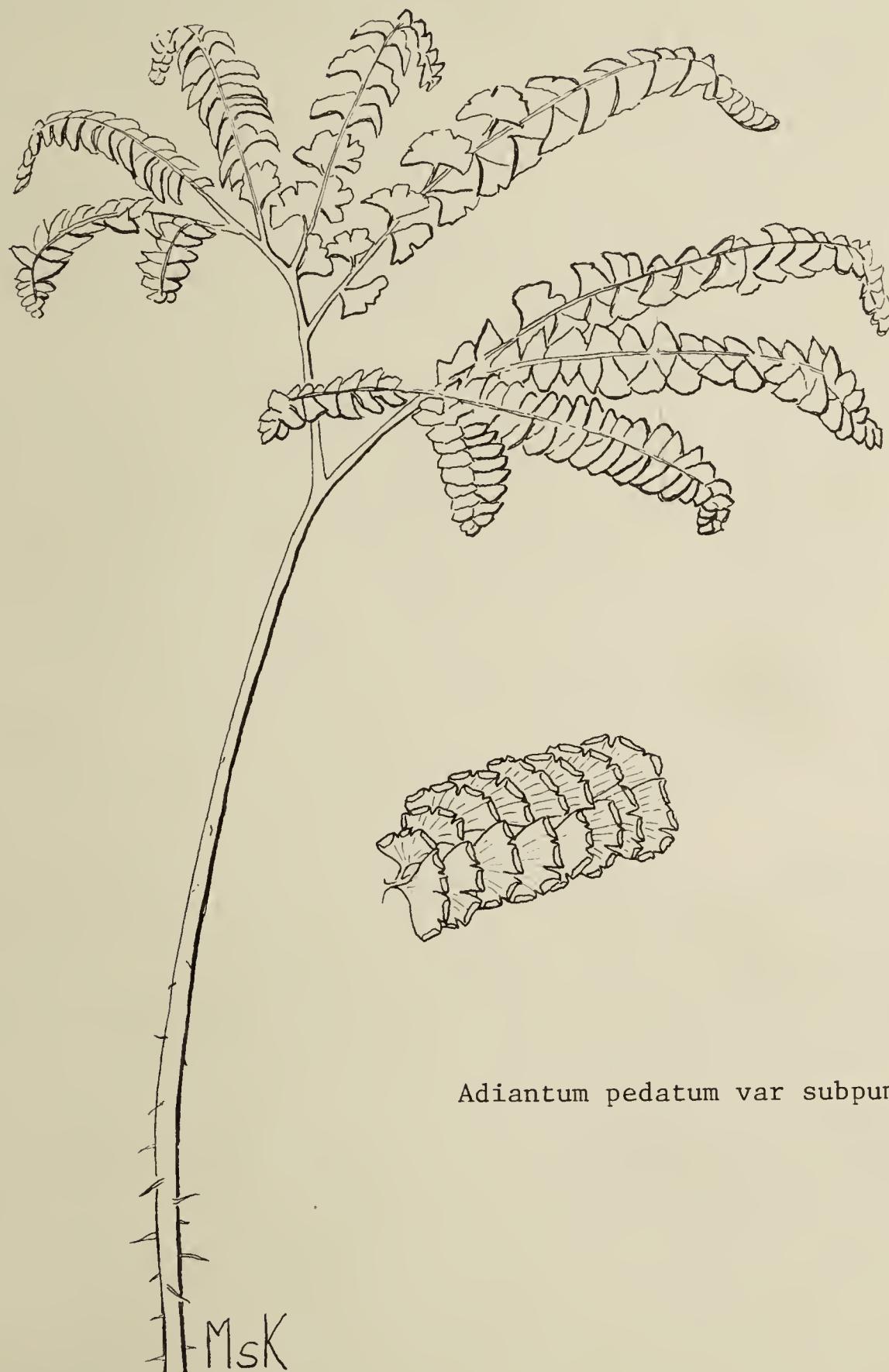


Horticulture Northwest

Journal of the Northwest Ornamental Horticultural Society



Adiantum pedatum var. subpumilum

Horticulture Northwest

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Sallie D. Allen, Editor

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Adiantum pedatum var. subpumilum
Mareen S. Kruckeberg



SOME NATIVE VIOLETS FOR PUGET SOUND GARDENS

Dennis Thompson, with Marvin Black

The first flower I remember seeing when I came to the Pacific Northwest from Texas was *Viola glabella*. Here were massed brilliant yellow pansy faces marching across a soft green carpet of moss, a great parade beneath the vine maple whose buds had just begun to swell. Carefully, I pressed a stem to be identified and carried it to a friend. My enthusiasm was rebuffed: "Oh, that's just our wild Johnny-jump-up, *Viola glabella*. It grows almost everywhere, but it is kinda nice. Helen's yard is full of them (Helen Gilkey)."

"Oh, that's just..." It is a phenomenon that Northwest plantsmen--male and female--begin discussion of native violets, especially *V. glabella* and *V. sempervirens*, with a put-down phrase such as "it's only" and end with a sheepish "but I like it." Violas are EXCELLENT plants and shouldn't need defending because not all of them are "deathwish plants" (to quote George Schenk) ...though such types do exist in ample quantities in the genus, as well! Perhaps we are still under Farrer's spell after 60 years!

"*Viola* brings this alphabet to the last great dragon in its path. No race is more fertile of more exquisite beauty, but no race is also more fertile in dull and dowdy species. And, unfortunately in the later years, the enormous multitudes of American violets have taken (no less than American heiresses) to overflowing into our continent undescribed, so that we have no idea, when we buy, whether the new name will give us another *V. rydbergi* (now, *V. canadensis* form) or merely some dingy little woodland worthlessness of no account... *V. glabella* should be a big yellow violet of 8 inches from Colorado..."

(The English Rock Garden, 1919,
Reginald Farrer)

(Farrer's confusion was justified. Had he searched in Colorado, he'd have discovered no *V. glabella* there.)

This year in the garden we have *Viola glabella*, *V. sempervirens*, *V. hallii*, *V. nuttallii* var. *praemorsa*, *V. nuttallii* var. *vallicola*, *V. douglasii*, *V. adunca* and *V. adunca* var. *bellidifolia*, *V. cuneata*, and *V. flettii*. Of these, *V. glabella* and *V. sempervirens* are easy woodland violets that readily adapt to shady Puget Sound gardens. *V. nuttallii*, *V. hallii*, and *V. douglasii* are violets of dry prairies, the latter species bordering toward desert conditions. Although they are more used to our growing conditions than are violets from the desert east of the Cascades, they are tricky in gardens here unless very carefully sited. *V. adunca* is an alpine or rock violet from the Olympics, Cascades, Wallows and other western mountains and sometimes in lowlands; it is variable in garden adaptability, usually easy. *V. flettii*, a very special violet from Olympic mountaintops, is not a plant for the open garden, but may survive in a slugproof trough or container. Slugs love most violets. We tried *V. canadensis*, a big, leafy plant with smallish white flowers; it proved the epitome of Farrer's "dingy little woodland worthlessness" or Lewis Carroll's "much of a muchness!" Perhaps we found a bad form. Let's look at the ones we grow, and some other good Northwest violets deserving comment.

Viola glabella apparently hasn't had as much good publicity as it deserves; Sallie Allen reports that British audiences last year were surprised and charmed by photos of good forms. It has a half-inch bright yellow flower in good forms, atop a vivid yellow-green stem, branching, with foliage reaching six inches to a foot tall. Forms in southern Oregon-northern California tend to be depauperate and thin, while forms from the Willamette Valley to southern British Columbia are more vigorous. A careful selection will provide plants that fill in densely. These plants prefer a moist site, will do nicely in soggy or streamside conditions, and adapt to peat readily. They make a nice combination with maidenhair fern (*Adiantum pedatum*); they finish flowering before most of the maidenhair fronds are out. Tolerant of relatively deep shade, they lighten dark corners with bright blooms and vibrant foliage. *V. glabella* is aggressive; do not plant it too near small delicate plants. One redeeming fact: both the young leaves and flowers of this and *V. nuttallii* var. *vallicola* are excellent crisp additions to early spring salads!

Viola sempervirens (formerly *V. sarmentosa*) is a more diminutive yellow violet with low rounded dark evergreen leaves. Whereas *V. glabella* spreads underground, *V. sempervirens* spreads strawberry-like by above ground stolons. Unfortunately, none of its differences from *V. glabella*--dwarfness, darker leaf color, evergreen leaves--are improvements. The dark leaves show less well and the plant seems less happy in shaded gardens, though *V. sempervirens* will succeed in drier conditions. Most forms are squinny and do not fill in densely. A collection from the Edmonds Community College campus, however, does fill densely and flowers well in dappled shade. Because of its size, it should be sheltered from more aggressive shade lovers. It does fall into that unique group of plants that will tolerate dry shade if given a duff or mulch base, as does the closely-related *V. orbiculata*, which usually grows at somewhat higher elevations. Where *V. sempervirens* (which is the preferred one for gardens) and *V. orbiculata* grow together in the wild, which is common, *V. sempervirens* will be the one with the runners and thickish evergreen leaves. *V. orbiculata* doesn't have stolons, and leaves are thinner and with less evergreen tendency.

We lost *Viola macloskeyi* in the garden by not paying enough attention to how to site it; in the Wallows where we found it, we missed noting the wet seep where it was growing, on the flat at the base of a rockslide. We were seduced by its tiny charm (it grew in mats only an inch high, with little white blooms) and the fact that *V. glabella* grew lustily alongside. Its typical location is described as bogs and it grows in high mountains around Mt. Hood, and in other places throughout our western mountains and elsewhere in North America. It is variable, often taller, always creeping and only moderately free-flowering; I prefer the dwarf one. The next try it will get our attempt at a bog.

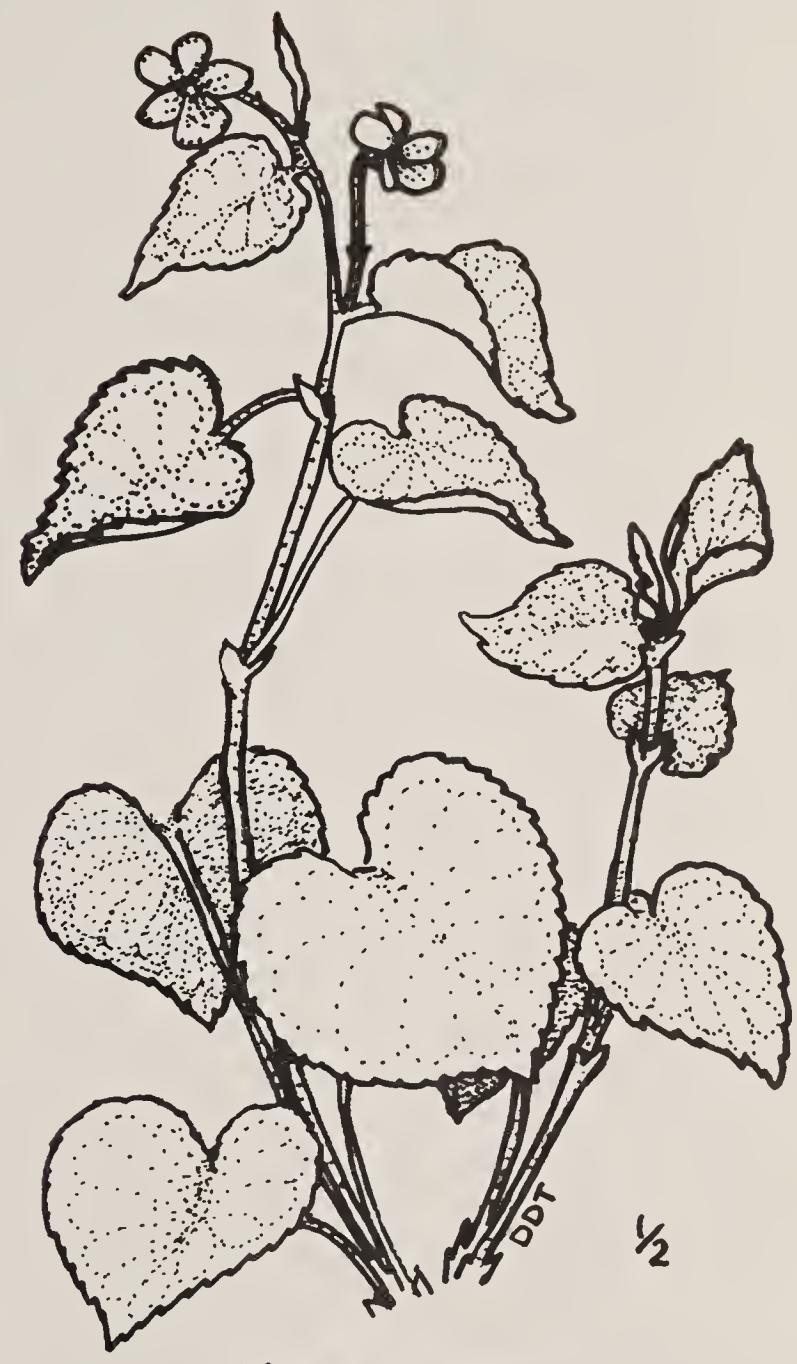
The prairie violets have survived the wetness of the winter and bloomed well this spring planted on a sandy, south-facing slope. All authors agree that in the garden they want the fast drainage of a slope, though they can take light shade. Now the major question is whether they will survive without summer baking, which is impossible in the mixed planting where we've placed them, though we withhold most summer moisture from that part. *Viola nuttallii* var. *praemorsa*, sometimes called the Astoria violet because that's where Douglas found it on gravelly sites, ranges north through the Puget Trough into British Columbia. Both the *V. n. praemorsa* and the *V. hallii* we are growing are from the warmer and drier area near Roseburg, in southwest Oregon.



VIOLA SEMPERVIRENS



VIOLA HALLII



VIOLA GLABELLA

Viola nuttallii praemorsa is a showy, tufted, nonrunning, lance-leaved violet. Its leaves are fleshy. They start rich green but have a dense white felting so thick as to appear furry sometimes. Plants are five or six inches tall with flowers just below the leaf-tips. Flowers on our plants are good-sized--half-inch or larger--rather than the commonly-described 1/4-inch, which is smaller than any *V. nuttallii* we've ever seen. This is a yellow violet (the great majority of western American violets are yellow), but with a whole bag of color tricks. The blooms have golden faces with brown lining, and a brown reverse on the upper two petals. This creates the illusion of a yellow flower springing from a dark brown bud, much like the red buds of *Eriogonum thymoides* opening to the straw-yellow flowers.

Viola nuttallii var. *vallicola* from ponderosa pine transition zones east of the mountains (ours was from near Ellensburg) changes a couple of things from var. *praemorsa*. The leaves, similarly ovate-lanceolate, are less furry, more green, and *vallicola* (at least ours) has nearly straight yellow flowers, with little or no brownish backing. It is blooming less so far in the garden than it was in its native hillside habitat.

Viola hallii has the exotic appearance often associated with desert plants in its deeply cut leaves. These are bluegreen, far more like the fertile fronds of *Cryptogramma* than the leaves of most violets. Of the Americans who write about these western violets--the European writers are relatively ignorant of them, mostly not getting beyond *V. pedata* in their recognition of American species--*V. hallii* is one of the favorites. Peck's A Manual of the Higher Plants of Oregon features a Helen Gilkey drawing of the plant as his frontispiece, which was also important because *V. hallii* was first described from Peck's home base, collected in 1870 on the grounds of Willamette University at Salem. The froth of foliage stands about four to six inches high and partly hides the 3/8- to 1/2-inch flowers. The faces are two-toned, a combination of ecru and palest lavender with a deep splotch and purple veining. The reverse of the lower petals is lavender and of the upper, velvety royal purple. Personally, I find this wistful charmer more attractive than the brassier *V. trinervata*. Ira Gabrielson expresses it well in Western American Alpines.

"*V. hallii* should be instantly passed up by all gardeners who value flowers for size and brilliance of color alone, for it will hold no interest for a mind tuned to mere size. It is wee and dainty, beautifully colored and well balanced. In addition, it is delightfully fragrant--one of the few cut-leaved species so blessed. Naturally growing in gravelly banks through western Oregon and northwestern California, it retains all the dainty grace that makes it so captivating in its native home when grown in similar poor soil in gardens."

Boyd Kline of Medford says, "If you can grow *Viola hallii*, you should try *V. beckwithii*," and he adds his recommendation. Lester Rountree, in Hardy Californians, describes *V. beckwithii* thusly:

"*V. beckwithii* reminds the Easterner in California of *V. pedata* as much as does any one of the California *Viola* species. Its leaf is three-parted and each part is deeply cut; its flowers, though larger than *V. hallii*, are a little smaller than *V. pedata*. It is a foothill and mountain species, growing in gravelly places where there is some humus, in sun or high shade, and it likes the late moisture afforded when the last snowdrifts melt. Later on these places often dry out completely."

Viola beckwithii is classed as more of a desert species; it is fragrant, probably a bit flashier than *V. hallii*, being two-toned purple and blue or purple and near white. It is probably touchier to grow here in Puget Sound than its relative.

Touchier still is the desert or sagebrush violet, *Viola trinervata*, which is closely related to the above two species. The foothills and scablands surrounding Ellensburg and Vantage are covered with this showy little pansy-type flower with very glaucous blue leaves neither lacy nor frothy but sharply-cut into three to five linear or lanceolate divisions, getting no more than two or three inches above the ground, which is often drying under 90-degree sun even in the April blooming season of the plants. The blooms are sometimes lightly fragrant, usually purple and pale blue, but varying from the sharp two-tones to nearly even-self colors, and with the pale blue often becoming nearly white; this spring we saw an all-white one on the desert. It grows in ground that is wet mud for a short while in spring when the snow melts and it thaws out, then it bakes hard and dry...try to duplicate that in a Seattle garden! Seed sowings the past two years haven't germinated--obviously we have a secret to discover--and we've looked at the obviously deep roots and avoided any attempt to kill the plant by transplanting it. Nevertheless, if one could find a way to grow it, this is a very showy violet; otherwise, it is worth a desert trip to go see in April.

Viola douglasii we've just purchased for the garden, so haven't tested it yet. It's a good bright yellow prairie-desert violet that grows in sun or light shade, bakes dry in summer. We saw fields of it in Lake County, California, and have planted it near our other prairie violets. One author suggests giving it "warm light soil or gravel scree in full sunshine." Still another prairie violet we haven't tried, a cutleafed yellow with a brown back, is *V. sheltonii*. Doretta Klaber quotes Boyd Kline as saying to give it leafmold, grit, and some shade, and quotes Albert Sutton of Seattle as having written her "I have had it in my garden but it never bloomed, which suited me fine as the mass of foliage is all the decoration you need."

The showiest big golden western violet, *V. pedunculata*, from areas in western California, may be ungrowable here; Wayne Roderick, a Petaluma native who should know, thinks it would be, but we will try it from seeds. It is the largest-flowered western violet, and in full sun we saw plants a foot across with dozens of blooms. *V. pedunculata* puts deep thonglike roots down into clay, and is reputed to be none too hardy.

Hardy, indeed, is *Viola adunca*, a widely distributed species varying much in form and color. Flowers are usually showy, typically deep blue purple accented by a white throat, and held above the cordate leaves. The choicest of all, we think, are the forms with smaller leaves, *V. adunca* var. *bellidifolia*, from the Olympics, North Cascades, and Wallowa mountains. In these, the flower size reduces little, staying relatively stable, but the leaf size shrinks from a normal violet leaf to as little as 1/4 to 1/2 inch, dropping the plant clump to midget proportions. Individual plants may be somewhat shortlived in the garden, though several have been there three years. One plant, collected by a friend who "just never got it into the garden" has survived three years in a styrofoam cup outdoors! George Schenk says that *V. adunca*, when happy, will seed enough to go visiting about the garden, but though ours have seeded they've not been this bold, and slugs take their toll, particularly of the small ones. This violet looks best if grown in gravelly loam; while it grows okay in rich soils it becomes sloppy and out of character.

Viola cuneata is a new acquisition; it will be a problem. Its home in the Siskiyous is on slopes wet in spring runoff, very wet, that then mostly dry off, growing under shrubs. If we succeed, we'll be rewarded by funny little flower-faces of white, with purple veins, red-violet reverses, and two red-violet eyes on the two lateral petals. It is a truly funny-face, not showy, above small deltoid leaves only two or three inches high. Can a plant of "wet hillsides of the Siskiyous" survive a shady Seattle garden? Tune in next year for the next exciting episode.

The last two alpine violets are more difficult. *Viola purpurea* var. *venosa* we've not grown. We were charmed by it on scree slopes 100 miles east of Seattle, near the headwaters of the Teanaway. It had the properly outsized flowers of a scree-dweller, golden-tawny-yellow with brown markings and backings (defying the epithet *purpurea*) over low, thick, wedge-shaped or sometimes lobed ivy-shaped leaves that were purple-veined on the back (upholding the epithet). If Marvin's seeds, collected in the Wenatchees this summer, germinate, we'll try from seed, growing any resulting plants in high shade in gravel and humus.

Among alpine plant connoisseurs, to flower *Viola flettii* is to exercise one-upmanship. It's hard to grow. Seeds come up fairly well, or it can be grown from July and August cuttings, but it triggers the salivary mechanism of every slug in the county. It is endemic to the Olympics, meaning it grows wild nowhere else. There, *V. flettii* grows in rock cracks, or on rock or mud-rock talus slopes above timberline. Its protective snow blanket melts or blows off these west-facing mountain tops early in the year, and they dry up by midsummer. It is distinct in appearance, its kidney-shaped leaves veined blue-gray above, dull purple below, all laid on over an olive-green base. The overall effect is more like a miniature cyclamen leaf than a violet. The flowers above the leaves are half-inch blooms of a rose-red-purple shade unique in western violets. The red-purple is a bit too lavender to be as showy as the bright yellow eye seems to promise. Its seed capsules are also purple. As a defense against weather and the small critters that feed on its seeds, *V. flettii* rations its blooms two or three at a time over a several-week span. In our garden this violet is ungrowable unless placed in a trough or pot b.s. (beyond slugs) where it can get summer drought and the relatively light winter moisture it prefers. The soil should be porous, gritty sharp small gravel or large sand predominating, and the exposure sunny. Those who grow it successfully say these are the essentials; we're still struggling.

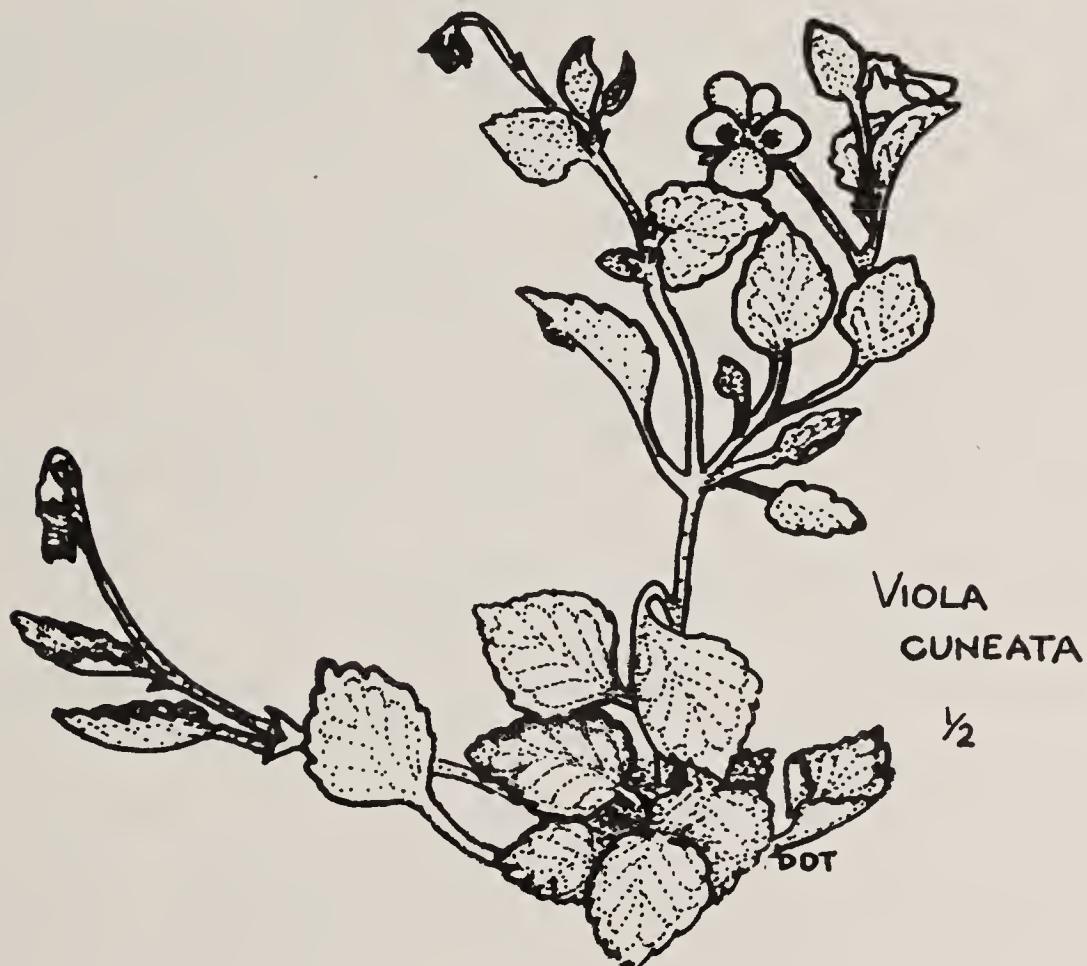
Collecting violet seed is an adventure. The prairie and desert species mature their seed in 10 to 20 days following bloom; sometimes you can find bloom and seed together. When the pod is plumped out and begins to lose greenness, pop it quickly into a brown lunch bag. Write the species name on the bag, close it, put it in a warm room and little explosions will begin as the pods pop open; in three days it will all be over. If you ignore advice and place your seedpods in a dish on the table, you'll discover that each square foot of deep pile carpet holds exactly 37 seeds! In England, a superstition among country folk has long held that violets breed fleas. Violet seeds are the size and shape of fleas; some are brown or black. One can imagine the countryfolk as a pod pops on a plant, seeds propelled in all directions: "See! See! See!"

The last two years, Marvin planted his seedpots indoors in spring, though a few went in the fall. Of violets, American and non-American, a few germinated readily, a few only after the next winter's cold in the unheated greenhouse, many not at all. A better scheme would be to plant collected *Viola* seeds as soon as possible, cover with a thin layer of coarse gritty sand or tiny gravel, place in the weather and let nature do the rest, with lots of slug bait. Particularly this would be advisable with desert and high-alpine types, which will also need

more careful transplanting because their roots are few and deep.

Western violets are not simply challenges in my garden; they invite a lot of nice comments from people who, perhaps, have never even seen them. And they are pretty, often in a shy-elegant sort of way. I think lines from George Schenk best sum up violets:

"Small, clump-forming plants whose flowers are celebrated in song and poetry as the shy sprites of the woods and the agents of romance. The best garden violets are also benign weeds."



REFERENCES

The most authoritative and complete reference on American violet species is Viola Brainerd Baird's Wild Violets of North America, University of California Press, Berkeley, 1942. It is scarce, only 1,000 copies were printed. Recently, Doretta Klaber's Violets of the United States, A. S. Barnes and Co., New York, 1976, has appeared, a useful book for its text, but not matching the superior illustrations of the first named book. The authors used these two references and the following others:

Abrams, Leroy, Illustrated Flora of the Pacific States, Stanford University Press, 1951.

Brockman, C. Frank, Flora of Mount Rainier National Park, National Park Service, Washington, 1947.

Clark, Lewis J., Wild Flowers of the Pacific Northwest, Gray's Publishing, Sydney, B.C., 1976.

Clay, Sampson, The Present Day Rock Garden, T. C. & E. C. Jack, Ltd., London, 1937.

Clements, Edith S., Flowers of Coast and Sierra, H. W. Wilson Co., New York, 1928.

Coulter, John M., Manual of the Botany of the Rocky Mountain Region, Ivison, Blakeman, Taylor & Co., New York, 1885.

Farrer, Reginald, The English Rock Garden, T. C. & E. C. Jack, Ltd., London, 1919.

Foster, H. Lincoln, Rock Gardening, Bonanza Books, New York, 1968.

Fries, Mary, and Spring, Bob and Ira, Wildflowers of Mount Rainier and the Cascades, The Mountaineers, Seattle, 1970.

Gabrielson, Ira N., Western American Alpines, The Macmillan Co., New York, 1932.

Hills, Lawrence D., The Propagation of Alpines, Pellegrini & Cudahy, New York, 1950.

Hitchcock, H. Leo, Cronquist, Ownbey, Thompson, Vascular Plants of the Pacific Northwest, Part 3, University of Washington Press, Seattle, 1961.

Horn, Elizabeth L., Wildflowers 1, The Touchstone Press, Beaverton, Oregon, 1972.

Howell, Thomas, Flora of Northwest America, Portland, 1900.

Hulten, Eric, Flora of Alaska, Stanford University Press, 1968.

Jepson, Willis Linn, A Flora of California, University of California, Berkeley, 1936.

Jones, George Neville, A Botanical Survey of the Olympic Peninsula, University of Washington, Seattle, 1936.

Larrison, Earl J., Patrick, Baker, Yaich, Washington Wildflowers, Seattle Audubon Society, 1974.

Mason, Georgia, Guide to the Plants of the Wallowa Mountains, University of Oregon, 1975.

McCully, Anderson, American Alpines in the Garden, Macmillan, New York, 1931.

Munz, Philip A., California Mountain Wildflowers, University of California, Berkeley, 1968.

Peck, Morton E., A Manual of the Higher Plants of Oregon, Binfords and Mort, Portland, 1941.

Piper, Charles V., Flora of the State of Washington, Smithsonian Institute, Washington, 1906.

Piper, Charles V., and Beattie, R. Kent, Flora of the Northwest Coast, The New Era Printing Co., Lancaster, Pennsylvania, 1915.

Rice, Bertha M. and Roland, Popular Studies of California Wildflowers, Upton Brothers and Dezelle, San Francisco, 1920.

Rountree, Lester, Hardy Californians, The Macmillan Co., New York, 1936.

Schenk, George, Rock Gardens, A Sunset Book, Lane Publishing Co., Menlo Park, California, 1964.

Szczawinski, Adam, and Harrison, Antony S., Flora of the Saanich Peninsula, B.C. Provincial Museum, Victoria, 1972.

Taylor, Ronald J., and Valum, Rolf W., Wildflowers 2: Sagebrush Country, Touchstone Press, Beaverton, Oregon, 1974.

Torrey, John, and Gray, Asa, A Flora of North America, Wiley and Putnam, New York, 1838-1840.

ADIANTUM PEDATUM VAR. SUBPUMILUM

(A 1980 Update on the Status of *Adiantum pedatum* Dwarf Form)

Sue Olsen, Bellevue, Washington

It is a unique plant, indeed, that can both excite the collector and provide satisfactory landscape permanence for the enlightened gardener. Such a plant is *Adiantum pedatum* var. *subpumilum*, whose popularity is well established with the horticulturally-seasoned collector and the gardener.

Roy Davidson wrote of it in the NOHS Journal Vol. I, No. 2, as follows:

"*Adiantum pedatum* 'Carl English's Form.' This might not be the proper designation for my favorite fern, but it tells exactly what plant I mean; no other five-finger maidenhair is anything like it. In shade, this reduced version of the common and widespread *A. pedatum*, is lush and "fluffy" in the proper manner, with all the delight of the type in telescoped fashion - total stem length is much reduced, as are the internode distances, so that each of the leaflets is partially overlapped by, and partially in turn, overlaps adjacent ones (in a way called "imbricate"); in the sunshine the size of leaflets is also much reduced and the color is more "bluish" (glaucous). Thus it may seem to be "different" according to where and how it grows, from three or four to eight or so inches in height and slowly (or quite quickly, when in a rich moist soil) forming clumps of a kind of beauty that is so "fern".

The story goes that Carl English brought this from an island offshore in the Strait of Juan de Fuca and propagated it by vegetative division and by spores. It remains quite fixed in its unique, reduced way and certainly is to be considered one of the choicest of ferns for gardens, and, of course, especially for small gardens."

Actually, the source of the original Carl English introduction was never revealed, but the name 'Carl English Form' is most apt, albeit but one of many varietal epithets supplied the dwarf maidenhair conglomerate over the years. Others, from an assortment of national and international experts include: *Adiantum pedatum* 'Aleutian Island Form', *A.p.* 'Japanese Form', *A.p. minor*, *A.p. aleuticum*, *A.p.*'Dyce's Dwarf', and *A.p.* *forma imbricatum*. Obviously it has been the subject of much horticultural correspondence and not a little bit of speculation, conjecture and botanical license. Fortunately, it has finally been christened by W. H. Wagner, Jr. (Canadian Journal of Botany, Vol. 56, 1978). In his article Wagner describes the discovery of a taxonomically valid natural population of the dwarf maidenhair by James Pojar of Ecological Reserves, Ministry of the Environment, British Columbia, on a rugged site, a possible glacial refugium, on Vancouver Island. For the curious, it is interesting to note that this isolated stand is a mere six feet above the high tide splash zone on very exposed wet, metamorphic cliffs. Prominent companion plants include *Gaultheria shallon* and *Picea sitchensis*. Luckily, like *Polypodium scouleri*, it need not have an oceanic salt spray for nourishment and cultivation, but will grace gardens with a delicate and diminutive appeal while retaining an inbred sturdiness presumably from its coastal fatherland.

Adiantum pedatum var. *subpumilum* is distinct also in that raindrops will nestle in its imbricate pinnae. The word *Adiantum* comes from the Greek and means to shed water (an observation that in many cases even applied to the plant in its prothallia stage such as *A. anceps*). While this is of no great significance botanically, the grower should use caution watering specimens planted in a sunny location as the combination can sunburn the fronds.

Wagner suggests, in his delightful article, that it is quite likely that other colonies exist as well as intermediate forms and hybrids and recent frond samples I have seen definitely support this theory. However, Wagner also emphasizes that there is positively no need or excuse for collecting plants for gardening purposes and hopefully its endemic site will soon be an ecological reserve.

Fortunately, the plant is available from suppliers and can enrich our gardening experience while holding a promise for other interesting forms in the future.



SEED EXCHANGE

Mary Kenady

Learning by doing seems to be the theme of the NOHS seed exchange. We might also call it a course in the botanical school of hard knocks. If we didn't have some really marvelous seed collectors, we wouldn't be able to get off the ground with this project, and most praise is due to them. They are, without exception, meticulous and careful and conscientious.

We are just past our second annual seed exchange, and, if we hadn't had to pay any bills, we would have made a nice profit on the project. As it was, well, we will do better next time.

We had 127 species of seed on our list, but the committee found very quickly that certain species were in high demand; others were ignored. *Enkianthus perulatus* was tops on the popularity scale, as were *Erythronium grandiflorum* var. *candidum*, *Gentiana lutea* and *Lewisia tweedyi*.

Contributions came mostly from local collectors, but we did receive seed from Virginia and from Australia as well.

It is nearly time to think about seed collection for the next exchange, so if you have an unusual or spectacular variety of plant setting seed in your garden, save it in your refrigerator for us! We're also most interested in native seed collected in the wild.

N.O.H.S. NOTES

SUMMER 1980

Supplement to Horticulture Northwest

President's Letter

Members and Friends:

The 1980 Lecture Series was heralded as outstanding, and it has proved to be just that. A broad scope of the key people in Community Planning in the Seattle area, including our own nationally-recognized horticulturist, Betty Miller, was presented at the March and April lectures. Lawrence Halprin, the world renowned landscape architect from San Francisco--a dynamic artist-builder with a humanist approach to civic landscaping--spoke and showed his superb slides in May.

Perry Johanson is Program Chairman, and Jane Blogg, Hospitality Chairman for the attractive coffee hours. Do let us know if you would like to help on these and other committees.

The Garden Tour to Vancouver was so well received we hope to do a repeat visit. The gardens at the University of British Columbia show such creative planning and variety of plant material, it will be of interest to see them again in more detail. Dr. Roy Taylor, Director, was our host and made the plans, which included luncheon at the handsome Faculty Club. Dr. Gerald Straley, Director, and Roy Forester, Assistant Director, conducted tours at the VanDusen Gardens, which were beautiful in full color.

The NOHS Spring Plant Sale at Alderwood Mall, May 9 and May 10, was a success and a happy experience for the many volunteers who worked on it. WELL DONE -- Mareen Kruckeberg and Dr. Art Kruckeberg, Chairmen.

The Board wishes to express its gratitude to the Weyerhaeuser Company Foundation for its contribution of \$2,500 in support of the expansion of the Northwest Ornamental Horticultural Society's Lecture Series program, and its concern with maintaining the livability and quality of life in our area.

Sincerely yours,

Jo Hotson
President

from James Crosby's Almanac
Your Vegetable Garden

PLANT:

When Forsythia Blooms;

Cabbage
Lettuce
Spinach
Parsley

Peas
Onions
Radishes
Turnips

When Magnolia and Quince Bloom;

Broad Beans
Broccoli
Cauliflower

Celery
Potatoes

When Dogwood Blooms;

Snap Beans
Zucchini

Corn
Pumpkin

When Wisteria and Viburnum Bloom;

Bush Limas
Spinach

When Peonies Bloom;

Established Tomatoes
Peppers



Membership Application
NORTHWEST ORNAMENTAL HORTICULTURAL SOCIETY

Policy:

To give financial support to the University of Washington Arboreta program and to other horticultural education endeavors.

Membership activities encompass: Lecture Series, Study Groups, Annual Fern and Plant Sales, Tours of gardens of horticultural interest, Horticultural Journal.

(Please fill in form as you wish information to appear in yearbook.)

Mr. _____ Mrs. _____ Ms. _____ Miss _____

Name _____ (First Name) _____

Address _____ Phone _____

City & State _____ Zip _____

New Member (date) _____ Or Renewal (date) _____

(Membership renewals will come due January, May and September, Whichever month is closest to date of Membership Application.)

PLEASE MAKE CHECKS PAYABLE TO:

Northwest Ornamental Horticultural Society

MAILING ADDRESS:

University of Washington Arboreta XD10
Seattle, Washington 98195

TELEPHONE: 543-8800

TYPES OF MEMBERSHIP: (Please check one)

<input type="checkbox"/>	Life	\$500.00
<input type="checkbox"/>	Sponsoring	\$100.00 to \$500.00
<input type="checkbox"/>	Supporting	\$ 50.00 to \$100.00
<input type="checkbox"/>	Contributing	\$ 25.00 to \$ 50.00
<input type="checkbox"/>	Active (Individual)	\$ 10.00
<input type="checkbox"/>	Group or Family	\$ 15.00
<input type="checkbox"/>	Nursery (Member Listing)	\$ 15.00

The Garden Tour in the Highlands with luncheon at the Seattle Golf Club is Monday, June 9. Nell Scott is Garden Tour Chairman.

The Fern Sale will be held at Crossroads in Bellevue on June 20-21. It is chaired by Sue Olsen.

DISTRICT ROSE SHOW

The Evergreen Rose Society, Seattle, will host the Pacific Northwest District Rose Show and meeting at the Holiday Inn, Lynnwood, Washington, on June 27 and 28, 1980. Schedules are available from Mrs. Evelyn McCarrell, 7525 14th Avenue NW, Seattle, 98177.

NATIONAL DAHLIA SHOW

The Inland Empire Dahlia Society, Spokane, will host the 14th Annual American Dahlia Society National Show at the Inland Empire Fairgrounds on September 5th thru 7th, 1980. Willis Collins attended the Annual Meeting of the American Dahlia Society in New York City where the detailed plans for the National Dahlia Show were explained to the meeting. Schedules for the show and other events are available from: Walter Hoppe, 13216 E. Nora, Opportunity, Washington, 99216.

WELCOME NEW MEMBERS

BAYLEY, Thomas	778-6884	REED, Mr. Ralph M.	364-0386
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Edinburgh EH3 5LR, SCOTLAND		SMITH, Meredith P., M.D.	
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JACKSON, Sue	486-6939	4504 155th Ave. SE, Bellevue	98006
6627 NE 196th, Seattle	98155	WALTER, Mr. & Mrs. Robert H.	
LOCKE, Marian	3722 SW 102, Seattle	3722 SW 102, Seattle	98146
126 Pine St., Edmonds	98020	WEBSTER, Mr. James E.	
PASKOVSKIS, Ms. Dagnija	821-3461	709 Smith Tower, Seattle	98104
13930 122nd NE, Kirkland	98033	WEYERHAEUSER CO. FOUNDATION, Dr. Stephen Mittenhal	
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PIERSON, Mr. R. Scott	593-4170	4407 241st SW, Mountlake Terrace	98043
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Box 472, Friday Harbor	98250	ZIEGLER, Ms. Ellen	
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		283-0014	
		784-8841	

PLANT TOLERANCE OF ENVIRONMENTAL STRESS

- the key to long life and minimum maintenance -

Betty Miller, Seattle, Washington

Do we have any local publication or other news media which has not been featuring the concern of our residents with the anticipated rapid economic growth and development and its effect on the quality of life and livability of Seattle? We are mindful because of the failure of other cities to maintain these qualities as they developed. A number of our civic leaders fear the worst: that it is inevitable that we will follow the same route.

A good starting point is, why is it that one tree species is more tolerant of environmental stress than another, and what is environmental stress? Plants can be likened to people, not in their specific process, but there are similarities in how they are affected by environment. The word "tree" will suffice in reference to trees, shrubs, and ground covers.

Some of us are more susceptible than others to a specific virus, heart problems, anemia, etc., due to inherited genetic susceptibility or resistance. The same principle applies to trees, i.e., certain ornamental cherry trees are inherently susceptible to virus or other pests and require routine protective spraying.

It also follows that if you are tired or physically rundown, you will be all the more susceptible to whichever genetic weakness you have. Likewise, if the cherry tree is rundown or weakened by air pollution (and it is pollution susceptible), it is going to be all the more susceptible to its genetic weakness and require a more intensive, costly spraying program. It can even become attacked by a new disease which is permitted by its weakened condition caused by air pollution. We are witnessing the introduction of new diseases for both people and plants. Not that the diseases are necessarily new, but that we are losing our previous resistance to them. The various combinations of air pollution and existing living conditions are weakening factors for plants, wildlife, and people.

Another example is *Platanus acerifolia* (London plane tree), previously considered disease resistant. But in our heavily populated cities, this resistance has been weakened by air pollution, and these trees are now being commonly attacked by anthraxnose, which has proven difficult to control to date.

Some of us can spend hours in the sun and acquire a nice tan, whereas others will suffer serious sunburn. This also applies to trees, some of which suffer from bark scald and/or foliage burn. This factor becomes more serious if subjected to the additional environmental stress of increased sun intensity caused by the glaring reflection of sun from neighboring buildings, glass, automobiles, and pavement during periods of high temperatures.

Add the weakening factor of air pollution and a tree's natural tolerance for this extreme exposure to sun becomes diminished. On top of that, it must be recognized that in dealing with traffic's carbon monoxide, the chemical

action from sun exposure creates ozone (particularly late afternoon sun exposure). Ozone is a vicious air pollutant. A street tree located in a heavily trafficked area, exposed to full sun and glaring sun reflection in the later afternoon, must have tolerance for both extreme air pollution (ozone) and extreme sun exposure.

Some of us are more susceptible than others or even allergic to the various kinds of pollution; i.e., dust, carbon monoxide, industrial fumes, etc. This applies to trees as well. More often than not, plant mortality is blamed on a drought, freeze, disease, or whatever, rather than the more likely cause: that the tree had been weakened by the effects of air pollution first, and consequently lost its tolerance strengths.

There are numerous other environmental stress factors of people/plant parallel effects such as air circulation. For example, the rhododendron is basically pollution-tolerant, but cannot tolerate stagnant air pockets or the dehydration of foliage caused by funneled winds between high buildings. Also, people's lungs have a varied tolerance for air conditioning or stagnant air.

Obviously it becomes essential to plant the species which can survive and reach maturity. Periodic replacements of intolerant plants is a poor solution due to the increasing costs of replacements and the threat of diminishing supply. Mathematically, trees cannot be grown to the specified height of 12 feet to 14 feet for planting when the replacement demand caused by mortality occurs faster than the trees can be grown. Nor does this practice provide us with the beauty of a mature tree or the full benefits of the tree as our best air cleansing agent. Never forget that vegetation is our source of oxygen.

On the plus side and only needing an extensive educational program: there are many ornamental plant species which are environmentally tolerant but are not being commonly used (and there are others which have yet to be tested). This is primarily because of the previously established habits in choice of plant material. These habits were established prior to our era of environmental stress. Our horticultural research scientists are researching intensively the tolerance of different species, and this information needs to be put to practical use by our nurserymen, landscape architects, public engineers and the amateur gardener. The first requisite of a tree's tolerance of environmental stress is its resistance to air pollution. A tree which has strong resistance to disease, but is not pollution-tolerant can be weakened to the point of becoming susceptible to disease or any other one of the environmental pressures.

Better to plant species which are both pollution-tolerant and disease-resistant. In this category, we have many qualified species of yew, cedar, podocarpus, eleagnus, oaks, firs, hemlock, *Ulmus parvifolia* (Chinese elm), and *Cunninghamiana lanceolata*. Very few of the pines or *Prunus* are qualified and, not all, but some of the junipers and cotoneasters. To name a few qualified deciduous trees subject to the appropriate geographical location, we have *Koelreuteria paniculata* (golden rain tree), *Oxydendron arboreum* (sourwood), *Sophora japonica* (pagoda tree), *Arbutus unedo* (strawberry tree), *Lagerstroemia faureii* (crepe myrtle), *Stewartia* varieties, and *Liquidambar* (sweetgum).

It has become consequential that we be informed on this subject. A list of iron-clad environmentally tolerant plants covering all plant life zones is available from the American Horticultural Society, Mt. Vernon, Virginia, 22121 (\$4.50 per copy).

Since we have a formidable list of adverse environmental stress factors for our trees to cope with, certainly the least we can do is to provide the tree with the means to develop a strong healthy root system. This requires a prepared planting site large enough for ample root development with a three to four foot depth of good nourishing friable soil for absorption of air and water, and good drainage. The commonly used criteria for planting requisites is woefully inadequate, belonging to the outdated era when the existing areas to be planted were more ecologically sound. Trees can survive in cramped quarters and impoverished soil with their root area suffocated by cement by being fed fertilizer; and they are about as healthy as you would be if you were kept alive solely on intravenous feeding.

Drainage is a word which is usually given consideration, but is resultingly by-passed because it can be very expensive. In fact, it is commonly the most expensive item in budgeting a planting plan. However, no drainage - no healthy tree; that is, not for long. Almost any tree from a nursery has the strength enabling it to struggle for survival for a few years, but we should give it a better chance.

This is all saying that each species has its own individual horticultural characteristics and tolerance factors. A planting plan becomes similar to a jigsaw puzzle; this species fits here, that one there, and none of them just anywhere.

The limitations or affluence of the budget for plant material, site preparation, drainage, and maintenance program; the existing conditions of the site to be planted; and the qualifications of the plant material for its tolerance of the environmental stress factors of the particular site determine which trees should be planted there -- that is, if it is to succeed.

We need to concern ourselves with the maintenance programs for our public plantings. Typical punishment can be exemplified by New York Central Park. Due to its current delapidation, caused by an inadequate maintenance budget to accommodate increased use, the Park Administrator now needs 100 million dollars just to put it back into shape; and that is only to start the cycle over again unless substantial additional funds are provided for an adequate future maintenance budget. Obviously, all this could have been avoided with previous availability of maintenance, and now -- very costly for New Yorkers.

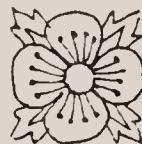
It is asking the phenomenal of elected politicians to give priority interest to long term results, yet it certainly is a priority financial interest of ours. Unfortunately, money spent on maintenance does not show in a material sense; it is evidenced.

We have already taken consequential steps in the wrong direction: Our Forward Thrust Bond issue covered costs of land acquisition, designer fees, contacting and development costs for new parks and recreational facilities. It is not clear whether the funds for maintenance were specifically itemized

within the terms of the bond issue, but maintenance was given absolute assurance. And then these necessary funds for maintenance were diverted to other needs.

For our own future financial protection, as well as our concern for maintaining the aesthetics which we now enjoy, we should recommend or even demand: First, prior to undertaking any new developments, including another park bond issue, an adequate maintenance budget must be established to meet the current needs of our existing parks. Where is the reasoning in developing new parks, permitting existing parks to fall into disrepair, and then be taxed astronomically a few years later for their repair?

It is time for environmental horticultural education or we will have our Lesser Seattle without making any effort! We are being faced with a challenge which very few cities have met successfully. With this, we could maintain Seattle's livability and quality of life.



ON THE JOYS OF OBSERVATION

Marge Baird, Bellevue, Washington

Even with our eyes half closed we are aware of the fragrant white splendor of *Rhododendron 'Loderi King George'*, the peaches-and-cream of *R. 'Unique'*, and the glowing scarlet of prostrate *R. forrestii* var. *repens*. But to the observant, there is much more to see and enjoy. Furthermore, the would-be rhododendron buff can learn to identify only by observing.

In March, don your rain clothes and go forth to gloat over the flower buds on *R. lanigerum*. They are large, round, and the bud scales, covered with satin-sheened appressed hairs, shade from cream to reddish-brown. The buds on *R. maximum* are uniformly green, but the pointed tips of the numerous bud scales curve outward giving a most distinctive look, almost a rosette of immature leaves. This characteristic is present in many of its hybrids.

To the discerning, the new growth on many rhododendrons is just as decorative as the flowers. Those with indumented leaves (the suede-like covering on the undersides) send forth indumented shoots, usually of a paler color than under the leaves. Those *Rhododendron 'Metternianum'*, *R. proteoides*, and *R. adenopodium* are white; *R. concatenans* are a light dusty-blue; the new leaves of *R. campanulatum* var. *aeruginosum* are a startling metallic blue.

New shoots of *Rhododendron calophytum* boast the added attraction of bright red bracts. *R. williamsianum* and many of its hybrids have attractive red-bronze to chocolate shiny new leaves; *R. decorum*'s new growth is a symphony in pastels: the pale green leaves are faintly flushed with lavender with pink-violet midrib; the stems match the midrib and are adorned with rosy-pink bracts. *R. moupinense* has, and often transmits to its hybrids, reddish bronze new growth lightly but evenly clothed with short, soft, white hairs. When these catch and hold tiny droplets of moisture, they outdo anything Tiffany could offer!

The foliage of *Rhododendron strigillosum*, that most glorious of reds, is very distinctive and makes its mark upon the hybrids. The very young leaves, tightly revolute, are completely covered with white "fuzz." But the 'piece de resistance' is the view from above the terminal buds. Each one seems to be nested in a halo of geometrically intermeshed silvery-white hairs. In reality, the hairs grow thickly from the short petioles of the top whorl of leaves. They remain for several years, becoming, even as you and I, quite stiff with age.

One of the most desirable of the indumented rhododendrons is *Rhododendron bureavii*. The thick, woolly covering under its leaves is a bright rust color. The new shoots are velvety fawn, and the leaves as they expand are covered above and below with coppery hairs.

These hairs that clothe certain rhododendrons are called trichomes, as are the scales on the lepidote rhododendrons. They are believed to help retain moisture needed by the plant during dry weather and appear in various forms; star-like, tree-like, funnel-form, etc. Trichomes can be seen with the naked eye, but a good magnifying glass gives one a much better view. If you look under the leaf of *Rhododendron glaucophyllum*, you'll see both topaz and yellow scales growing sparsely on the glaucous under-surface. On the leaf of *R. rubiginosum*, they are brown and so close together as to be overlapping.

The flowers of most of the Fortunei Series and its hybrids are wonderfully fragrant. But have you noticed the spicy leaf scent of *R. glaucophyllum* *R. luteiflorum*, and several of the lapponicums?

Your next visit to the Rhododendron Species Foundation, the Arboretum, or a collector's garden will be much more interesting if you look for more than flower and size!



SEED EXCHANGE

I was most interested to see the new seed list and to get seed I wanted from it. Many plants, particularly alpine and Himalayan natives, are held in cultivation by amateur gardeners, sometimes solely by them. Professional botanic gardens often do not have the time or patience to maintain rare plants. Further, many botanic gardens now have the extremely selfish, horrendous habit of only including plants collected in the wild on their *Index Seminum*, thus cutting out thousands of interesting plants from their lists. I often wonder how a botanic garden that grows alpines can justify such a short-sighted policy, when you consider the many Chinese and Tibetan plants which are completely inaccessible in the wild. But for the efforts of so-called "amateurs," many plants could become extinct in cultivation, so keep up the good work and increase the size of your seed lists. Even if there are only a dozen seeds of a rare plant, get them onto the lists and share them.

Dr. P.N.D. Seymour, Director, Devonian Botanic Garden, University of Alberta, Edmonton, Alberta, Canada

EUCALYPTUS PERRINIANA: SPINNING GUM

Brian Halliwell, Royal Botanic Gardens, Kew, England

Eucalyptus or gums are grown in many of the warmer parts of the world as timber trees because of their rapid growth and tolerance to periods of drought. Many are brought into the garden for their spectacular flowers, curious woody seed capsules, attractively coloured bark or handsome foliage. Unfortunately, most make large trees and so are unsuited to any but the largest gardens. One exception which can have a place in a smaller garden is the spinning gum, which has attractive and unusual leaves. *Eucalyptus perriniana* grows wild in the mountains of New South Wales, Victoria, and Tasmania, where it can make a small tree up to 20 feet in height, although it often remains a shrub only half this height.

This, like all gums, has two stages of development in which growth is quite different. In fact, they are so dissimilar that anyone seeing two plants at different stages of development could be excused for thinking they were two quite different shrubs. The leaves in the juvenile stage are thin, silvery grey and round, encircling the stem. When they become adult the alternate leaves are thick, leathery, green, lance- or sickle-shaped and hang down. Between these two extremes are many intermediates in which there is a gradual transformation. The round leaf in the juvenile stage elongates until it becomes obvious that it is in fact two opposite leaves, joined at the base. There is a gradual separation into two separate oval leaves which gradually narrow, develop stalks and change from silvery white to green; a change is taking place whereby the opposite leaves become alternate. The length of time *Eucalyptus perriniana* remains as a juvenile varies from a few to many years, and some forms remain perpetually in this state. Off-white flowers, in groups of three, form in the axils of usually adult leaves, but these are insignificant as are the woody seed capsules which follow.

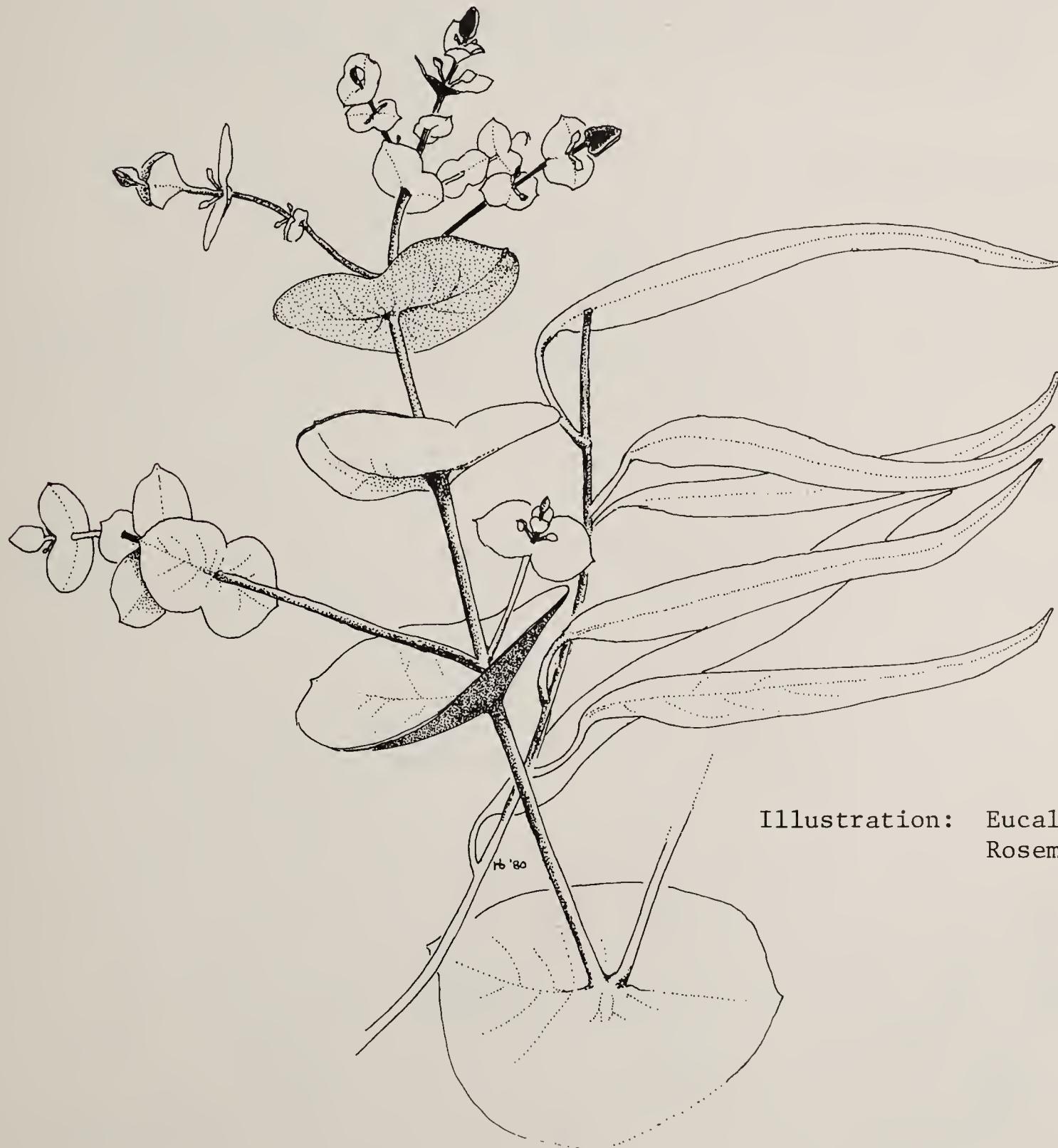
The attraction of this plant is in its juvenile foliage, which is handsome in colour and form and, when cut, is much in demand by floral artists. A plant which has become adult can be changed back into its juvenile form by hard pruning, for when new growth develops this will be juvenile but in time will again become adult. In a small garden this can be a regular operation so as to produce the most desired kind of foliage and to keep it within bounds. Judicious pruning can take place during the winter, but the main pruning is carried out in March or April.

It is easily raised from seed, which is the only means of propagation. Sow thinly on a well-drained, lime-free compost in February or March. Some cold, for one or two weeks, either natural or artificial, stimulates and produces an even germination. As soon as the seedlings' leaves expand, pot singly into small but deep containers using a well-drained, lime-free compost. Give plenty of light with good air movement and do not expose to too much heat -- 45-55°F is suitable. Plant out into their final position in April or May as soon as the danger of frost has passed. It is important to plant whilst still quite small and before the seedling has filled its container with roots. Those plants which are root-bound take a long time to establish, and once the roots curl around they seldom produce well anchored plants. Plant in a well-drained

lime-free soil in full exposure. When planted, small growth can be very rapid and six feet of growth in one year is quite common, while more than one stem may be produced.

If the leaves encircle the stems, what happens when they die? There is no leaf stem to become detached so that the leaf falls to the ground or blows away. As the leaf dies, its tissues dry and gradually break away from the stem they encircle and slide down to its base. Eventually a collar of dead leaves buildup around the stem, and when the wind blows these leaves rise up the stem and spin around it; hence the common name.

This is one of the hardiest of the *Eucalyptus* making a small bush and so is well suited to growing in a smaller garden.



TWO SOPHORAS

Sally Walker, Tucson, Arizona

Among the shrubs of the southwest, two of the most beautiful belong to the genus *Sophora*. These evergreen unarmed shrubs both bear dense clusters of lavender pea-shaped flowers with purple markings in the spring, each flower is about one inch long, and those of *S. secundiflora* are scented.

Sophora secundiflora, the "Texas Mountain Laurel" is the larger of the two and may reach eight yards in height, though it is usually shorter. It is native to the lower elevations in west Texas and northern Mexico and is suitable for gardens in warmer climates. The yellowish-green leaves are leathery and slightly hairy on both surfaces. They are compound, with five to thirteen leaflets, being rather variable in shape, about one and one-half inches long, sometimes indented at the tip, and some are almost rounded. The light brown pods are constricted between the seeds. These are orange-red and one-half inch long, very similar in appearance to the seeds of *Erythrina flabelliformis*, the coral bean, and are poisonous.

Sophora arizonica, the "Arizona Mountain Laurel" is a much smaller shrub reaching three yards. Its compound leaves are pointed and smaller, about one inch long by .4 inches wide. They are a darker green than *S. secundiflora* on the upper surface and have a silver color on the reverse side. As it originates from a higher elevation than *S. secundiflora*, *S. arizonica* should prove hardier in cultivation. This species is very local, though fairly abundant where it occurs. On a cold day in early April, a colony of these shrubs was in bloom at 5,000 feet in a limestone area in the Whetstone Mountains in Cochise County, Arizona. In some areas, the purple flowers could be seen in profusion through binoculars and, in other apparently identical areas, there were none, possibly due to the absence of limestone.

Sophora arizonica grows in association with *Cercocarpus breviflorus*, the mountain mahogany, *Mortonia scabrella*, sandpaper bush, *Pinus cembroides*, the pinyon pine, *Dasyliion wheeleri*, desert spoon, *Ceanothus Greggii*, buckbrush, *Acacia constricta*, white-thorn, and two sumacs, *Rhus choriophylla* and *R. microphylla*. Nothing else was in bloom at this time of the year and the flowers were being visited by hummingbirds. The seeds are ripe in early autumn and are red and one-fourth inch long, probably poisonous. Owing to the hard seed coat, scarifying the seed before sowing is recommended.



Illustration: *Sophora arizonica*
Sally Walker

Tidbits by Ladybug



In response to the question about raising *Nothofagus fusca* (New Zealand Beech tree) from seed which was written about in the spring issue of Horticulture Northwest, I wrote to a friend who lives in New Plymouth, New Zealand about it. She is a horticulturist-botanist and is with the Parks Department; her speciality is ferns. She works in a very beautiful park in New Plymouth called "Pukekura." She asked several growers of native seeds there if they have trouble in raising the beech tree seeds, and their answers were "yes." She goes on to say, and I quote, "that apparently beech trees, and this applies to yours too, only have viable seeds every third year. They have seeds each year, but it is the third year when the seeds have a kernel in them. You would need to keep a check on the seed produced each year until you get the viable lot."

Hope this information is of some help.

Elizabeth Bryer



Do you have a problem with *Trillium ovatum*? We have noticed that some clumps in the garden have aborted flower buds and puckered, unhealthy-looking leaves. Is this widespread in our area, or restricted to two gardens we know of?

We dug one affected clump and found slimy, disintegrating sheaths below ground level and extensive rot and tunneling on the old rhizome. We are unsure of the cause or appropriate treatment. So far other *Trillium* species are thriving close to the *T. ovatum* clumps affected. We would like to know if other gardeners are having the same problem; if they know the cause and solution.



I have had *Eucalyptus perriniana* in my garden for about six or seven years, and so far it has been hardy. My plant came from Francisca Darts who raised a number of seedlings --- the seed having come from a tree in England and supposed, therefore, to be hardier. I am very fond of my tree, but it did have a really ugly angle of growth and had no juvenile foliage to speak of. Since the tree trunk was about four to five inches thick, I really didn't know how to prune it. "Cookie" (Allyne Cooke), who came from down under, said to "Hack it all off," so, with some trepidation, I did just that. That was last year, and this year I have a lovely shrub with six stems about five feet high. The foliage is all juvenile, and most beautiful again. I plan to prune carefully this time so that it stays at this lovely stage of growth.

Rosemary Burnham, Burnaby, B.C.



NOHS

FERN SALE

FRIDAY: 10:00 AM - 9:00 PM

SATURDAY: 10:00 AM - 6:00 PM

JUNE 20 - 21

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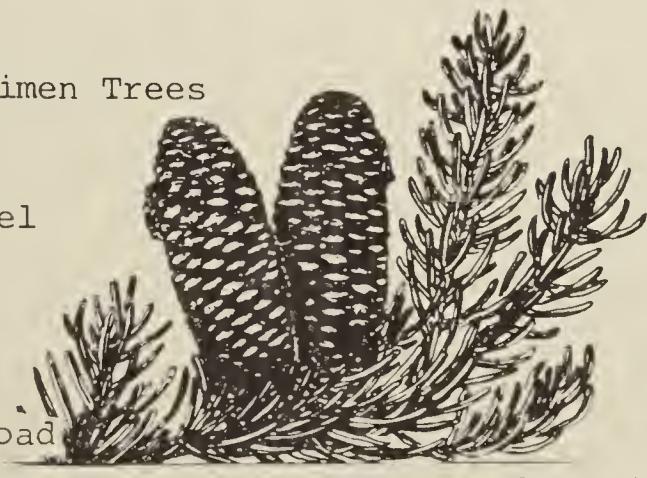
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